

**POPULATION AND THE ENVIRONMENT:  
POLLS, POLICIES, AND PUBLIC OPINION**

By

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## ABSTRACT

Although recent academic and popular attention has argued for a wedding between population and environmental problems and policies, the scientific knowledge base for these topics has grown separately and at different rates.

Environmental research has grown faster than population research, while the joint treatment of these topics remains in its infancy. International polls that have included many questions concerning environmental attitudes have included far fewer on population. The few surveys on population attitudes have ignored the environment.

The World Fertility Survey and the Demographic and Health Survey are fertility, rather than population, surveys. They have been useful in precipitating national policies on family planning but are poor models for needed attitudinal and cognitive research on population and the environment. Some contemporary polls, such as the United Nations-sponsored poll conducted by the Louis Harris Agency, have serious methodological defects. Others, such as the 1992 Gallup poll, contain valuable data from which future surveys could profit.

The conclusion outlines the need for a new multi-national survey of Population/Environment Knowledge, Attitude, and Practice (PEKAP).

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## INTRODUCTION

Social scientists frequently employ sample surveys to assess public attitudes toward current or prospective government policies. Population and environmental problems are two areas of public concern and debate that have traditionally had different constituencies and leadership. However, there have been many recent attempts to join forces, both at the organizational and conceptual levels. As issues evolve, there is a growing need for new social scientific knowledge, especially assessment of public opinion toward current or potential policies on population and the environment. In this paper, I will deal with several questions relevant to this need:

1. Has the demand for better policies on population and the environment increased the social science knowledge base on these subjects?
2. What data are available and needed to assess governmental attitudes toward population and environmental problems?
3. What data are available and needed to assess public attitudes on population and environmental problems?

In answering the first question, I will look at trends in the number of scholarly publications over the past few decades. For the latter two questions, I will look more closely into past data collection efforts that concentrate on the population issue and provide comparative information on the environment.

## THE SCIENTIFIC KNOWLEDGE BASE

SOCIOFILE [note 1] is a data bank of article abstracts that deal broadly with sociological topics. It abstracted 177,728 documents from 1600 sociological and related journals between 1974 and 1992. "Demography and Human Biology" and "Environmental Interactions" are two of the 21 major subjects covered by the data base. I first searched for the number of citations in which the words "population," "environment," or "population and environment" appeared in the title or abstract ("basic index"). A second search asked for the number of abstracts in which these topics constituted the main topic of the article ("descriptors").

As judged by the volume of abstracts, social science attention to the environment has grown markedly in the last decade. While SOCIOFILE's total file grew by only 39% between 1983 and 1991, the number of "basic index" citations on the environment increased by

139%. And "descriptors" on the environment increased almost seven fold (figure 1).

However, the growth in "population" citations, while faster than overall growth has been much slower than for environment--only 43% in basic index citations and 120% in descriptors. By 1991, the unequal growth rates resulted in a nearly identical absolute number of basic index citations: 1061 for population and 1036 for the environment. However, environment received almost three times as many descriptor citations (325 to 119). References to population and the environment (jointly) are few. Although basic index items total 1220 and have tripled since 1983, there were only 42 articles in the 18-year period in which "population and environment" was the major topic.

A second source of information on scholarly productivity is POPLINE, a computerized bibliography of documents on population. Over the same period (1974-92), it abstracted about the same number of population documents (164,349) as SOCIOFILE has abstracted for sociology/social science in general. As seen in figure 2, the total number of population citations since 1980 has been declining. It does not matter whether we measure the citations by the size of the overall file (-48%), by the number of documents identified as "population" in a "global" search (-38%), or in a "keyword major" search (-41%)[note 2].

Over the same period, articles whose main topic is the environment (keyword major) have steadily increased, and global environmental abstracts have shown only a slight (7%) decline. Global references to "population and environment" have remained steady since 1981 at 500 to 600/year but very few articles have this as their main topic: 9 in 1980, 78 in 1991. To sum up what we have found from the abstracts in SOCIOFILE and POPLINE:

1. Over the past decade, social science productivity on the environment has increased much faster than productivity on population, which may be in decline relatively and absolutely.
2. Productivity on the joint topic of population and environment has at best increased modestly from a very small base.

## POPULATION POLICIES AND GOVERNMENT ATTITUDES

Population policies are not new. They were proposed by governments in classical Greece and Rome and articulated by early philosophers from China to the Middle East. What is new is the technology available to governments (primarily modern contraception and the mass media) and the internationalization of technical assistance on population policies and programs. Newest of all is the goal of

slowing population growth rates rather than sustaining or speeding them up. And, at least in a substantial number of cases, governments have assigned high priority to population planning.

Judged by these more recent criteria, population policies have existed for only a few decades. Hope Eldridge (1968: 387) concluded, "Only three countries can be said to have coherent, carefully constructed and frankly- stated population policies: France...Sweden...and India." The first two were more developed countries desirous of increasing their birth rates. Moreover, in much of the modern period, researchers have viewed migration as "the only major demographic process over which policy was consciously debated and fixed" (Robinson 1975). The 1960s saw the development of new contraceptive methods and the encouragement of a few European and Asian nations. The international agencies then became major instigators of population planning for developing countries, with family planning as the major tool.

By the end of the 1950s, only six developing nations, including Tonga and Hong Kong, had policies supportive of family planning. By the end of the 1960s, 45 countries had formulated policies, and, by 1975, 81 had done so.

However, of the latter number, Watson (1977: 2) argued that only 54 gave "real programmatic support." Moreover, in the more industrialized nations at that time, "Population...does not rank high on the agenda of national problems. It is more given than problematic, more to be adjusted to than changed" (Berleson 1974: 786).

A more recent review remains pessimistic about governments' commitments to population planning [note 3] and their ability or interest in integrating it with social and economic planning in general:

"Population factors continue to be treated essentially as exogenous planning components. The state of the art seems restricted mostly to an examination of population projections in relation to the demand for social services. In some countries, even that relatively simple approach seems to have run into serious problems of application because sectoral programming and target-setting have suffered from inaccurate demographic estimates and analyses. Selection of social and economic policies and programmes, including the countries well advanced in the application of development planning, appears to be largely devoid of the consideration of their implications for demographic variables and processes (Farooq and Pernia 1988: 11)."

Aside from such subjective appraisals, how can we assess government attitudes on population and environment issues? I will discuss three approaches: systematic expert assessments, direct queries of government officials, and content analysis of government documents.

## Systematic Expert Assessments

The emphasis here is on "systematic." The prototype is the scheme developed by Lapham and Mauldin (1985: 132) where "Some 400 population specialists around the world provided information on 30 items related to family planning programs...." The subjects of the questionnaire were experts on a particular country or countries. The authors scored responses on policy and three other program effort categories (service, record keeping, and availability/accessibility). The scores for policies in 73 countries ranged from 0 (Saudi Arabia and Laos) to 31 (China). The authors based their scores on their evaluations of eight questionnaire items including budget, public statements by leaders, import laws about contraception, and mass media attention to contraception.

This technique is a great improvement over judgments made by individual experts. It employs many judges, breaks "policy" down into eight more objective components, and asks all judges the same questions about these components. However, it is still tainted by judgmental and subjective problems, perhaps compounded by the additional layer of authors' judgments [note 4].

Family planning policies and programs heavily weight the various measures. They also ignore policy issues such as internal and external migration, population distribution, and urbanization. However, the method could easily be adapted to include other aspects of population policy.

## Direct Queries

The leading example of the direct query approach is the series of surveys on "Government Perceptions and Policies on Demographic Trends and Levels in Relation to Development" carried out by the United Nations (UN). About every two years, the UN has sent a questionnaire to each member nation, asking for its official position on population issues. A major finding concerns the growing number of nations that have formally recognized a national population problem. In 1974, the UN found that only 28% of the 156 responding nations judged their population growth to be too high, compared with 40% in 1990. Further, the proportion that said they support direct access to contraceptive methods increased from 55% to 76% (United Nations 1992: 38).

Can we trust the responses of nations that claim their population growth is too high? Are they not like individuals who, when polled, may do their best to give answers that will please the interviewer? After all, as sponsor of the questionnaire, we could

suspect the UN of rewarding countries that have "appropriate" policies and programs.

Further, unlike a poll of persons, we really do not know how many individuals or departments answered the questions. In a large country with many departments, a number of persons may share responsibility for responses to specific questions. However, in a small country or one with more centralized authority, an individual or a single department may respond.

Another problem refers to missing information--countries that fail to respond to the questionnaire. At the time of an initial inquiry in the early 1960s, only 44% of 124 countries responded to the questionnaire. And, as in surveys of individuals, those who responded were different from those who did not. An analysis found that "the nonrespondents were principally the small underdeveloped countries, not the ones which traditionally oppose birth control programs..." (Back and Winsborough 1968-69: 644).

Later inquiries brought higher return rates but with considerable fluctuation, for example, 47% in 1978 and 72% in 1982 (United Nations 1989: 387). This is an average of 63 countries that did not answer each of the six more recent inquiries (United Nations 1989: 387). Certainly a non-response from a nation is more significant than a non-response from an individual. Also why did Brazil answer only one of the six inquiries, while Colombia answered all of them? Why have Bolivia and Haiti answered three and the Dominican Republic five?

The length of the questionnaire would certainly stun the average respondent. The 1988 inquiry was 42 pages long and contained 282 questions, 48 of them open ended (United Nations 1990). There were 77 questions on fertility and the family and 25 "how-concerned-are-you" questions regarding causes of death ranging from suicide to measles. There were 25 items on integrating demographic factors into development planning, sections on population and the status of women, and on population and peace. But there is not a single question on the environment.

Despite such limitations, we can learn from these surveys. For example, we should look closely at the attitudes of industrial countries. In 1990, not one of 38 industrial countries considered its growth as too rapid, and as many as seven considered it be too low (United Nations 1992: 48). Because any population growth in these countries heavily burdens the environment, their demographic viewpoints are of special concern. Why do strongly Catholic countries such as Belgium and Italy, with slightly negative growth rates, consider their rates as satisfactory? But France and Greece, with positive annual rates of 0.2 and 0.35%, consider their rates as too low?

Why are the United States, Canada, and Ireland, satisfied with rates between 0.8 and 0.9%? If we uncovered such perplexing

findings when investigating individuals, we would soon follow up with in-depth interviews, focus group sessions, and observational approaches to explain the typical cases and diagnose the deviant ones.

As we move to other regions, even greater irregularities surface. Although 30 African nations judged their growth rates to be too high, the Congo, Equatorial Guinea, and Gabon, with annual rates of 3.2, 2.4 and 3.5%, regard theirs as too low. Moreover, there are 18 more African nations that regard their rates as "satisfactory" although all exceed 2%. The UN believes that the first three consider their nations under populated and that they see rapid growth as desirable. This could also be important in Argentina and Bolivia, which view their rates of 1.3 and 2.8% respectively, as too low. In-depth follow up to discover how countries perceive their rates should be a high priority research item.

## Content Analysis

We can avoid some bias problems, inherent in the direct query approach, by analyzing government documents intended for some other purpose. We can see a good example by examining what 169 governments said about population in their reports to the Rio de Janeiro Earth Summit Conference. The United Nations Commission on Environment and Population (1992) published three volumes of report summaries, usually prepared by special conference committees. Each 5-6 page summary contains a section on "Problem Areas" and a section on "Recommendations and Priorities on Environment and Development." If governments view population as a major factor in the environment, we would expect to find population problems and recommendations in these sections.

The number of population problems ranged from less than five (in Singapore, Myanmar, North Korea, and Cuba) to more than 40 (in Russian Federation, Pacific Islands). There was a median of 14 with 75% of the nations citing more than 10 problems. Despite this large number, a majority (54%) failed to mention population growth or pressure as a problem (table 1). Twenty-eight percent mentioned neither population growth nor distribution (that is urban concentration or city growth).

The data confirm industrial nations' lack of concern about their population growth. Of the 42 nations of Europe, North America, and Oceania, only six mentioned population growth as a problem, and four of these were from the former Soviet Union. The United States and Switzerland are the only other countries in this group.

Table 1 - Number of Countries Mentioning Population Growth or Distribution

as a Problem

	Latin Amer. Caribbean	Africa	Asia	Europe USA	Oceania Canada	Total
Population Only	5	20	15	3		43
Urban/Distribution Only	15	6	13	9		43
Both	6	14	12	3		35
Neither	8	4	9	27		48
Total	34	44	49	42		169

Source: NATIONS OF THE EARTH REPORT (United Nations Commission on Environment and Development 1992)

On the other three continents, Latin American nations were the least likely to cite population problems (35%); African nations, most likely (70%); and Asian countries fell in between (50%)[note 5]. Latin American countries were most likely to cite urban growth or distributional problems (62%), compared with Asian and African nations (49% and 43%, respectively).

Although the 169 nations made a total of 2,232 recommendations, only 31 countries or 18% made a recommendation on population. These ranged from "coping with population growth" to "better family planning." Nearly all came from Asia (16) and Africa (12). In Latin America, only Haiti, Bolivia, and Trinidad made population recommendations. None of the industrial nations did so.

This test of concern about population has advantages similar to those of open-ended questions in an individual questionnaire. This is especially true when the respondent is unaware of the subject of the inquiry. However, despite guidelines, each country decided its own mechanisms for writing the report, making some responses more "official" or representative of decision makers than others.

#### MEASUREMENT OF PUBLIC ATTITUDES: THE WORLD FERTILITY SURVEY

Information on public attitudes can greatly enhance the success of public policies [note 6]. With respect to population, the World Fertility Survey (and its successor, the Demographic and Health Surveys) has been the largest cross-national survey in the history of social science. The WFS interviewed 341,300 women of childbearing age from 61 countries at a cost of \$47 million. At least \$5 million of this money was from developing countries. A large staff of experts operating from the International Statistical

Institute organized and monitored the survey. It was a model for rigor in sampling, questionnaire design, data processing, and report writing. Should it be the model for social science research on the environment?

Scholarly production was impressive in volume [note 7], and the surveys greatly increased developing country capacity for conducting sample surveys. Moreover, there were several signs of policy payoffs. First, the survey allowed countries, not sure of their stand on the controversial issue of population planning, to engage in an activity ("research") policy relevant but less subject to controversy [note 8]. It gave some breathing space to countries not quite ready to introduce population planning. In addition, surveys contributed to policy by:

- \* demonstrating a large "unmet need" for contraception,
- \* providing more accurate data on fertility, which tended to be higher than official estimates,
- \* verifying that prevalence and duration of breast feeding were important factors in fertility, and
- \* showing that larger doses of education than had been supposed would be necessary to induce fertility declines (Gille 1985: 278).

A questionnaire sent to participating agencies after completion of the surveys in 1983 specifically asked about dissemination and utilization of the findings. Nineteen countries reported that they used the findings in population projections (Ortega and Vaessen 1987: 964-965), and:

"Eighteen of the 19 countries with official family planning programmes made use of NSF findings in these programs; findings were also applied in 15 of the 23 countries with private family planning programs [note 9]."

### Limitations of the World Fertility Survey

Although the World Fertility Study (WFS) proved useful to many countries, need to note its shortcomings as a model for attitude surveys on environment and population. First, most countries restricted the sample by gender, age, and marital status. Especially problematic, even for a fertility survey, was the exclusion of males and of young unmarried women. Regarding the environment, there are both theoretical and empirical reasons for considering younger women's attitudes as qualitatively different from older ones [note 10]. Any large scale survey should take care to include this population.

Second, the survey was essentially a-theoretical [note 11]. While it provided much useful descriptive material, the explanatory or predictive power of the study was weak.

Third, attitude data in the WFS are almost non-existent, confined to a few items on desire for more children. It did not include attitudes toward or toward demographic aspects of one's community or nation.

Fourth, the survey's only assessment of respondents' knowledge was that of contraceptive methods and their supply sources. Since the survey did not assess demographic knowledge, it sheds no light on respondent awareness of government positions on population growth or family planning. The survey also does not measure awareness of population size, growth, density, or distribution within the respondent's nation or community.

Fifth, only 17 of the 42 countries included a community module and most of these did not analyze the data. Thus, we cannot identify those community characteristics that affect fertility variables.

Sixth, there are very few potential explanatory variables in the WFS questionnaire. For example, there are no questions on agriculture (tenure, production, land use, size of plot, etc.) although most of the respondents live in rural areas. The survey also does not collect data about sources of information on family planning (mass communications exposure, friendship networks, health professionals, etc). It also excluded migration data and details on women's employment.

In 1984, the U.S. Agency for International Development (USAID) began a new series of surveys--the Demographic and Health Surveys (DHS). By 1991, the had received final reports from 29 countries, with many more surveys planned. In addition to new questions on maternal and child health, there are more attitude items on contraceptives and fertility intentions, sexual behavior (sexual frequency and age at first experience), migration, women's working experience, and exposure to mass communications. As in the WFS, however, there are no questions on demographic knowledge, attitudes, and behavior or on agriculture, the community, or the environment (Institute for Resource Development 1990).

In sum, the WFS and DHS set good examples for overall design, methodology, and policy benefits. But they provide little guidance for the content of future surveys on population or the environment. However, another source of guidance on public opinion are the surveys carried out by professional pollsters, who are strongly policy oriented. What can we learn from them?

## TWO DECADES OF PUBLIC OPINION POLLING

## U.S.-Based Surveys

Using computerized data covering 150,000 questionnaire items from more than 8,000 surveys in the Roper Center Archives, Milavsky (1991) found that U.S. from 1935-90 had administered 2,979 questions on the environment.

>From a mean of less than two questions per year up until 1969, the average rose to 80 per year in the 1970s, 148 in the 1980s, and 311 for the period 1990-92.

Using the same data set [note 12], I searched for questions on "population growth," "population size," and "overcrowding." There were only 149 items in these categories, 96% of them since 1970. Since then, there has been no trend in annual numbers of references. Population questions have been few and have not been increasing [note 13].

## Surveys from Other Countries

The 12 volumes (1978-79 to 1990-91) of the THE INDEX to International Public Opinion include an annual inventory and list of questions used in "over 165 countries and geographical regions worldwide" (Hastings and Hastings 1991: xi). Norris (nd) tallied 469 items on the environment from this source. Judging from this small number compared with the thousands tallied in the Roper Archives, the INDEX is highly selective in what it chooses to include [note 14]. Nevertheless, it gives us an idea of the nature of the items and the amount of attention given to population and the environment.

A search of the indices contained in the 12 volumes resulted in a total of 332 items broadly related to population [note 15]. Nearly half of these (156) concerned "family size," more than one-quarter (91) referred to control," and only about one-quarter (85 items) to attitudes toward population [note 16]. Almost one-third of the items occurred in the most recent three-year period. This recent upsurge, however, is almost entirely due to increases in questions on birth control and family size, while population items have remained constant at about five per year over the past decade.

According to the INDEX, France asked the largest number of questions (57), followed by Japan (49), Great Britain (37), the USA (33), Germany (32), and Canada (24). After Canada, there is a sharp drop to the next set of 13 (3-9 items each), all of them industrialized except for India.

Most of the remaining 16 nations asked only one question each [note 17].

Based on population questions used in more than 80 surveys, we can conclude that:

1. Questions about population attitudes are fewer than those concerning family planning and family size.
2. Countries have repeated few questions, and countries do not usually ask same questions.
3. Data on the public's level of demographic information are especially sparse.
4. Responses reflecting degree of concern about population depend on question format and sequence. A very small minority (<5%) spontaneously cite population problems as the highest priority. A larger proportion, up to one-quarter, believe they are among the world's major problems. And majorities say, if asked directly, that they regard them as serious.
5. Population questions usually refer to population growth or size. Very few questions refer to population distribution, composition, migration, or death rates.
6. Except for attitudes about abortion and family planning, there are few questions about attitudes toward existing or potential population policies.
7. There are no questions about attitudes toward the dynamics of community (as opposed to national or world) population.
8. Surveys almost never ask questions about personal behavior aimed at affecting population or population policies, such as voting, organizational support, political activity, adoption or family planning for demographic purposes.
9. Surveys rarely assess exposure to mass communications about population.

## CONTEMPORARY POLLS ON POPULATION OR THE ENVIRONMENT

### Population Polls

Sponsored by the Population Council in 1965 and 1967, the Gallup Organization carried out the earliest American surveys on population. A major finding was the public's lack of demographic

knowledge. In a 1965 poll, only one-third of the respondents could correctly estimate the size of the U.S. population even when prompted and allowed a range of 25 million over or under the true figure. Less than one-third knew or guessed correctly that Brazil was growing faster than the United States. And only correctly guessed the number of years it would take to double the national population at current rates (Berelson 1966) [note 18].

About half thought American population growth was a serious problem, and almost two-thirds regarded world's population growth the same way. In the two years between surveys, there was much media coverage, but overall concern stayed about the same. However, concern decreased compared to other social problems such as crime, poverty, and racial discrimination. In both surveys, nearly two-thirds thought the U.S. Government should give birth control assistance to states and cities on request [note 19].

In 1971, a national sample of adults for the U.S. Commission on Population Growth and the American Future confirmed the low level of demographic knowledge. Only 38% knew China had the world's largest population. Only 16% could correctly state the world's population within one billion. And only 37% correctly assessed U.S. population size as between 175 and 224 million (Wolman 1972).

This survey had several advantages over the earlier Gallup polls. First, it contained a considerable number of policy-type questions. Should we do something to slow population growth? Should the government facilitate abortions, sterilization, and sex education? Should we use tax laws to motivate fertility or its control and encourage or discourage immigration?

Second, although there was little on the environment, a few questions directly linked it with population. Is population growth the main reason for air and water pollution? Is population growth the main engine of economic growth? Is population using up natural resources too fast? And is population or pollution the greater problem?

Third, a few questions directly linked personal behavior with attitudes toward national demographic trends. Would the respondent consider adopting a child? Should people limit fertility even though they can afford to have a large family?

Finally, it contained questions on attitudes toward the size of the respondent's community. Deficiencies in the study included the absence of information on behavior itself, such as use of birth control, voting, or organizational activity with population goals. The only published analysis relied on simple cross-tabulations of two variables.

The Gallup organization carried out the most recent American poll

for the Rockefeller Foundation just before the 1984 World Population Conference in Mexico. It contained nine items largely dealing with attitudes toward population policy. Although researchers did not fully analyze the study, they issued a press release and a series of cross-tabulations at the conference (Segal 1984).

The most recent national survey (2080 American voters), sponsored by the Pew Global Stewardship Initiative, took place in February 1994. Their report concludes, "Americans do express concern about population growth as a global issue, and Americans will support policies or programs directed at slowing population growth..." (Pew 1994: 1). However, on most issues, negative attitudes were almost as common as positive ones. For many respondents, it is more difficult to disagree than to agree with a statement so the disagreement noted below should be taken seriously:

41% disagree that too much population growth in the world is holding back economic development.

42% opposed the United States sponsoring programs overseas to help other countries slow population growth.

48% disagreed that it is important that we lower birth rates in the United States to help save the environment.

We should note at least two of the items with which there was substantial agreement:

75% agreed that population problems have more to do with the way that people are concentrated in certain places than with the numbers of people.

68% agreed that people everywhere should feel free to have as many children as they can properly raise.

This poll provides useful up-to-date information on population attitudes but suffers several deficiencies. First, it did not assess knowledge levels. Second, it did not tap attitudes toward population growth in one's own community. Even more unfortunate, most questions cannot be directly compared with earlier surveys. However, based on this evidence, the U.S. public is no more concerned about national or world population growth than it was in the mid-1960s.

## Environmental Polls

Recent years have seen two multi-national surveys entirely focused on the environment [note 20].

## The Harris Poll

Louis Harris and Associates (1989) conducted this massive multi-national survey of public and leadership attitudes about the environment for the United Nations Environmental Programme (UNEP). All references in this section come from the Louis Harris and Associates survey with page numbers shown in parentheses at the end of each quotation.

Researchers administered the questionnaire in "...31 separate surveys, conducted in 16 countries...whose populations account for more than 64% of the world's population" (p. 1). The samples represented persons aged 16 and over, mainly those living in the "...major metropolitan areas and urban centers, because of the impracticality of surveying rural populations" (p. 2). Researchers surveyed 300 to 1,250 persons in each nation plus a separate sample of 50 "leaders." Scientists used quota sampling, "random walk" techniques, probability sampling, and electoral registers.

The survey concentrated on awareness of and attitudes toward environmental issues. The most important conclusion concerned the "deep and widespread concern about the quality of the environment." This conclusion came from such findings as, "Most people in 15 of the 16 countries surveyed rated the environments of their countries as only fair or poor" (p. 6). Such a conclusion is critical for it could suggest that people would welcome, if not demand, stringent government policies in both industrial and non-industrial nations.

Besides being highly variable in sampling size and design, the surveys drew respondents exclusively from major urban areas, with all that this implies about literacy, general sophistication, and attitudes toward national issues. But there are more serious problems of bias with the sequence and format of the questions. The way that researchers introduced the Harris questionnaire immediately tipped off respondents that the subject of the interview was environment, defined in a vaguely positive way. "Hello.... We are conducting a survey of public opinion in this country and other countries about the environment--the world we all live in" (appendix B). Immediately after the introduction, three items [note 21] elicited an evaluation of the environment, again somewhat positively defined for the respondent as "the land, the sea, the air, the rivers and lakes, and the climate."

In the questions that follow, researchers accommodated "don't know" or "not sure" responses in the coded response categories but never incorporated them as an alternative response to the questions themselves. This inflates the proportions who appear to have an opinion [note 22]. Rarely are "not certain" responses reported as higher than 3%, even in developing countries. For the following question, which could confound the average college graduate, a mere 8% of the total sample (and only 9% in the four African samples) reported "not sure."

"If you had to make a choice between having building and industrial development which might endanger the health of some people but would make jobs for people and a better standard of living, or living conditions where the air was good, the water was good, and the health of people was much better, which would you choose--a situation where there would be a better standard of living but with real health risks, or a less good standard of living but with much less risk to human health (p. 167)?"

When respondents have no opinion, are uncertain, or have conflicting feelings, they are exclusively susceptible to suggestion, to loaded questions, or to what they think the interviewer wants to hear. The Harris survey contains several questions loaded in the direction of eliciting concern for the environment. For example, before each of 10 items on pollution, the interviewer asked, "How much of a danger do you think that kind of pollution will be in your country in the next five years--very serious, somewhat serious, not very serious or not serious at all" (emphasis added) (p. 112). To show lack of concern, a respondent had to deny the implied existence of a danger. Most of the 10 pollution questions, moreover, are vividly negative, for example:

"How much of a danger is...drinking water that will make people sick (p. 112)?"

"How much of a danger is...air which is polluted and makes breathing more difficult (p. 112)?"

Batteries of items follow, most of them further informing the respondent about specific dangers. Thus, a set that asks whether each of a number of items constitutes "a major problem, a minor problem, or not a problem" contains such loaded examples (emphasis added) as:

"...the danger of radioactivity from nuclear power plants (p. 76), and

"...the dangerous use of chemicals used to control pests or weeds (p. 76)."

A set of eight agree/disagree items included such loaded statements as:

"Unless something is done urgently about controlling the environment in the world, the land will become desert, the oceans will flood over onto the land, and the earth will hardly be fit for human life (p. 13)."

"With industry dumping dangerous toxic wastes, people polluting the air with fumes from cars, and factories giving off polluted smoke, the health of future generations of children is in real danger (p. 13)."

To assess the balance of positively and negatively worded statements, I classified each of the survey's 102 substantive questions according to its loading. The examples I have already given illustrate negative loadings. An example of a positively-loaded item (one in which environmental circumstances are favorable or non-problematic) would be: "People have always lived with some pollution in the air and water so why be upset by it now? Do you agree or disagree?" (p. 64). An example of a neutrally-worded item is: "Do you feel the environment where you live has become better or worse in the last 10 years, or has it stayed about the same?" (p. 19).

A tabulation of the 102 items found that 38 of them were neutral, 62 negative, and only one or two positive.

### Population in the Harris Poll

Of more than 100 items, the Harris poll asks only one question on population, "Do you think the growth of population has been a major cause, a minor cause, or not a cause of pollution to the environment?" (p. 94). The same format was used for 10 subsequent items such as pesticides, the dumping of toxic chemicals, and the cutting of forests. In the unweighted total sample (7,072 cases for all nations), population is at the bottom of the list as a major cause of pollution along with "soil erosion." Only 45% of the combined public samples considered either of these to be a major cause of pollution, compared with more than 80% for various kinds of industrial practices, 69% for inadequate government policies, and 61% for the failure of countries to cooperate. The same ranking holds among the sample of leaders, 50% of whom judged population to be a major cause of pollution.

Some differences among nations do not appear unreasonable (table 2). It is not surprising that India, with its lengthy record of population planning, had the highest level of public and leader perception for the importance of population. And it is plausible that nations with the slowest rates of population growth, such as those in Europe, would have the lowest levels of public concern. Mexico's very high levels might be due to their extensive mass communication programs on population, as distinct from Argentina's pro-birth policy.

Less credible, however, is the low significance attributed to population in China, where both leaders and the public have been heavily saturated with population control propaganda. That China is at the same level as highly pro-birth Saudi Arabia strains credulity as does population's high ranking in Kenya. Of course, in any survey, a single question cannot be trusted, and the diverse sampling designs in this survey could also be responsible for such differences. More detailed analysis of the data (controlling for social and economic characteristics) might help to account for the differences.

Table 2 - Percent Who "Think the Growth of Population Has Been a Major Cause of Pollution or Damage to the Environment...." by Nation and Sample (Louis Harris and Associates 1989: 93-97)

	General Public	Leaders
Argentina	36	18
Jamaica	47	46
Mexico	78	67
Brazil	50	48
China	37	34
India	70	80
Japan	39	56
Saudi Arabia	37	35
Kenya	70	66
Nigeria	40	36
Senegal	58	36
Zimbabwe	56	78
Hungary	22	27
Norway	30	62
West Germany	39	54
All Countries	45	50

### The Gallup Survey

In 1992, the Gallup International Institute carried out a second cross-national opinion survey of mammoth proportions. Funded by governments, foundations, business organizations, and Gallup affiliates, researchers interviewed "representative national samples" of 1,000 to 1500 citizens in 24 nations around the world (Dunlap, Gallup, and Gallup 1993b: 8). The questionnaire is far superior to Roper's and avoids many of the problems of question loading discussed above. A very important distinction is that its first question, before any information about the subject of the interview, is open ended asking the respondent to name "the most important problem facing our nation today" (p. 9).

This format helps the analyst identify the level of environmental concern before possible contamination by batteries of environmental questions. In response, only about 10% of the samples in Northern America, Russia, Germany, Great Britain, Hungary, Poland, and Norway mentioned environmental problems. This is by no means a trivial proportion but yields a much different picture than that gained from direct questions asking the respondent for the degree of concern. Also, in Ireland, the one country where respondents knew before questioning that the environment was the study subject, 39% cited environment as the number one problem [note 23].

Although the Gallup survey asked respondents to rate the seriousness of environmental problems, it also asked the same questions about crime, the economy, health, prejudice, and homelessness. Thus, the finding that majorities in 12 of the 22 countries rated environmental problems as "very serious" becomes

far more meaningful. This is especially true when we discover that, in 11 nations, environment is among the three most highly-rated problems and in none is it the lowest-rated problem.

The Harris survey's second question about rating the environment in this country, excellent, pretty good, only fair, or poor, was very similar to Gallup's second question, "Overall, how would you rate the quality of the environment of our nation--very good, fairly good, fairly bad, or very bad?" (Dunlap, Gallup, and Gallup 1993b: 12). The Gallup study reports only the percentages who responded "fairly bad or very bad." We can compare these percentages with Harris respondents who replied "only fair or poor" in the eight countries surveyed by both agencies (table 3).

Table 3 - Percentages Who Think Their Nation's Environment is Poor, A Comparison of Harris and Gallup Polls

	Harris (1989) "only fair or poor"	Gallup (1992) "fairly bad or very bad"	Harris (1989) "poor"
Brazil	80	49	29
Mexico	85	55	51
India	83	51	48
Japan	83	52	27
Hungary	85	72	39
Germany	83	42	30
Norway	55	11	13
USA	64	46	20

Source: (Louis Harris and Associates 1989: 93-97, and Dunlap, Gallup, and Gallup 1992)

In this comparison, the Harris survey respondents, who knew it was an environmental survey, express far more concern about the environment [note 24]. In most instances, the difference is about 60% (30 percentage points). In Germany, twice as many express concern and, in Norway, five times as many. Of course, the Gallup study used national samples, while the Harris subjects were urban. But in India, the Gallup sample also was 90% urban, and the differences are just as large as in countries where the sample included rural populations. We could argue that Gallup's "fairly bad and very bad" reflects more concern over the environment than the Harris' "only fair or poor" and that the Harris equivalent should be "poor." Using this measure, concern drops radically in the Harris sample and, in five of the eight countries, falls below concern shown in the Gallup survey (table 3, column 3).

From this comparison, we can conclude that the study's introduction can strongly affect the measure of "concern." Also slight changes in question wording or categorizing can have major impacts on the conclusions. Concern for the environment is widespread but not as intense as the Harris data and conclusions imply.

## Population in the Gallup Survey

The Gallup survey is an exception to the general neglect of population in environmental polls since it included four questions on attitudes toward population. Early in the questionnaire (question 5), researchers asked the open-ended question, "What is the most important environmental problem facing your nation?" (Dunlap, Gallup, and Gallup 1992: 11). In none of the 22 nations was population mentioned most often or second most often. And only in India was it the third most frequently-mentioned problem. Either, respondents do not view population as a priority problem of the environment, or they simply do not associate it with environmental problems.

A later question may explain this. The interviewer read six "possible causes of our nation's environmental problems" to the respondent. The interviewer then asked how much each "contributes to environmental problems here in our nation--a great deal, a fair amount, not very much, or not at all." The first problem read was "Overpopulation--there are too many people using up resources" (Dunlap, Gallup, and Gallup 1992: 19).

Using data from Dunlap and others (1992), I classified seven out of 22 nations as developing countries (India, The Philippines, Turkey, Chile, Mexico, Brazil, and Korea) and 15 others as more industrialized. In the average developing country, 50% believe overpopulation contributes a great deal to national environmental problems, compared with only 15% in the more industrialized countries (unweighted means).

Compared with the other five problems, overpopulation scores high among developing countries, but comparatively poor among industrial nations. This suggests, first, that most respondents do not readily associate over- population with environmental problems. However, when population is identified as an explicit alternative, developing country respondents rate overpopulation as a very important contribution to environmental problems but respondents in more developed nations do not [note 25].

While the Gallup questionnaire is clearly superior to the Harris poll, the questionnaire seems too difficult for illiterate or semi-literate respondents. Unfortunately, so far, researchers have not reported the proportions of non-responses and "don't knows." I believe the samples are biased toward upper-educated respondents in developing countries or that there are unacceptably high proportions of non-responses.

## THE NEGLECT OF POPULATION IN RECENT SURVEYS

Despite the amount of data gathered about the environment, a recent review concluded that:

"The work that has been accomplished to this point does not constitute adequate base-line data. It does not provide comprehensive coverage of countries or topics. The questions that have been used are seldom comparable on a global basis. The sample frame has been based on political and administrative boundaries with the result that the samples cannot be used to address many environmental issues. Most of the work to date has been primarily descriptive, designed to measure public concern about different environmental problems. Few of these surveys have been designed to explore changes in attitudes and behavior (Jacobson 1992: 3)."

Even though inadequate, poll data on the environment are stronger than on population. Although questions and surveys on the environment have blossomed in recent years, questions and surveys on population have not. An examination of recent polls on the environment finds them short on population issues.

In 1992, the International Social Science Survey (ISSS) conducted a 21- nation poll that contained 130 items on the environment. Items ranged from attitudes toward astrology to animal rights but did not include attitudes toward population.

In 1990, a British survey by Market and Opinion Research International (MORI) queried respondents about 18 environmental problems ranging from destruction of tropical forests to uneven pavements. It excluded population as a problem. Similarly, MORI environmental attitude surveys of British Members of Parliament have not included population attitudes. Three 1990 MORI surveys contained 16 environmental behavior items, ranging from avoiding chlorine-bleached diapers to buying free-range eggs. But it did not include population relevant behavior (Worcester 1993).

Eurobarometer polls, public opinion surveys in the European community, in 12 countries have asked about personal behavior that might directly or indirectly affect the environment such as, littering and financial support for environmental associations. It did not include population-related behavior.

In a review of longitudinal poll data, interviews conducted with the same respondents over time, Dunlap and Scarce (1991) unearthed a total of 46 environmental questions administered by nine major U.S. pollsters [note 26]. Population was not among the questions.

Also in the United States, Cambridge polls in 1987 and 1989 asked respondents to register their degree of concern for a list of 10 "potential environmental threats" ranging from pesticides to greenhouse effects. The polls did not list population growth or density as one of the threats (Dunlap 1991: 111).

## CONCLUSIONS

According to one authority, "Several forces are converging to create powerful pressures for conducting research on links between population growth and environmental quality" (Preston 1993: 600). In this paper, I have appraised various aspects of the knowledge base for such research and found them weak. This is especially true of the links between population and environment, which have received little scholarly attention. But it is also true for the study of population, where productivity has not kept pace with studies of the environment.

In terms of public awareness, poll data are highly vulnerable to sampling and questionnaire defects. But available evidence suggests that environmental awareness and concern are more widespread than concern about population. The general publics of most nations do not understand population-environmental linkages. Governments also often ignore them, indicating the need for more research on, and perhaps education of, decisionmakers.

To facilitate policy, we need better data and analyses of public and decisionmaker opinions on population and the environment. Questionnaires should contain both topics, and we need to replicate the surveys and sampling designs in many industrial and non-industrial nations. Moreover, we need greater concentration on attitudes toward demographic variables such as growth, size, distribution, and migration. Such variables should refer to world, national, and community levels. We also need more information on behavior motivated by demographic norms and attitudes [note 27].

Analysis must move beyond descriptive statistics to include multi-variate statistical methods. The degree of consistency among various techniques such as content analyses, direct queries, and expert assessments needs systematic evaluation.

The WFS and DHS, with their carefully-designed samples and questionnaires, can provide general guidelines for a world public opinion poll on population and the environment. But we should not repeat their shortcomings. The lessons we have learned from the deficiencies of other poll data should be helpful in creating a superior multi-national survey of Population/Environment Knowledge, Attitude, and Practice (PEKAP).

## ENDNOTES

1. "SOCIOFILE abstracts journal articles in the field of sociology and related disciplines, such as anthropology, economics, education, medicine, community development, philosophy, demography, political science, social psychology, and planning. Coverage is international" (SOCIOFILE 1974-1994:1).

2. POPLINE's coverage includes demography, human fertility, censuses, economic and social characteristics, biological characteristics, population policy, and maternal and child health. It includes unpublished reports and foreign language publications. "Global" is the more inclusive search, and corresponds roughly to "basic index" in SOCIOFILE. "Keyword major" identifies the major theme of a publication and is roughly comparable to SOCIOFILE's "descriptor."

3. Some critics have even expressed doubts about the depth of commitment of international donor agencies best known for promoting population policies. Thus, Lester Brown (1991: 17) has stated, "The World Bank officially recognizes the need to slow population growth, but contributes little to doing so. The Secretary General of the United Nations rarely mentions population, much less provides leadership on the issue."

4. "The reported scores represent the authors' best judgment as to the score indicated by the data received...instead of taking the average of all answers..." (Lapham and Mauldin 1985: 122). Whether this is an advantage or a disadvantage depends on the expertness of the experts.

5. The only major Latin American countries that mentioned population growth were Mexico, Ecuador, El Salvador, and Guatemala. Among the African minority that failed to mention population problems were South Africa, Chad, Zambia, Zaire, and the Congo. In Asia, some of those that failed to mention population are Thailand, Turkey, Iraq, Jordan, and North and South Korea.

6. These are occasionally assessed by content analysis. For example, Wilmoth and Ball (1992) traced U.S. opinion on population 1946-1990. They did a content analysis on a sample of 548 magazine articles among the 1683 on population indexed in the READERS GUIDE TO PERIODICAL LITERATURE.

7. All 41 internationally-funded developing country surveys, and most of the others, produced detailed national reports. Moreover, the central office produced about 80 scientific reports, 50 multi-national comparative studies, 11 technical bulletins, 12 methodological studies, and "at least 500 analytic projects based on WFS data" (Cleland and Hobcraft 1985: 3). At the very least, "these papers probably contain more information about the practical methods of survey taking and interviewing in developing countries than has been published in any previous enquiry" (Grebenik 1981: 25, cited by Blake 1983: 154).

8. At first researchers considered the population issue as so sensitive that they did not explicitly mention policy objectives in the original design of the project. "A strong emphasis on the role of WFS in providing much needed data for policy-making in the population field could have limited the response from countries and the full collaboration of the necessary local institutions and personnel" (Gille 1985: 273).

9. Among the specific policy consequences for particular countries, drawn from Scott and Chidambaram (1985) are: 1) The national Family Planning Association in the Dominican Republic based a new program on the strong demand for female sterilization revealed in the WFS. 2) Data proving extremely high fertility in Kenya precipitated the creation of the Integrated Rural Health Family Planning Program. 3) The Turkish Ministry of Health used WFS data to win Parliamentary support for a law on family planning. 4) WFS results in Cameroon and in Nepal helped move these governments to form National Population Commissions. 5) The discovery of surprisingly low rates of contraceptive prevalence in Pakistan was influential in the formulation of its Sixth Five-Year Plan.

10. Based on a wide variety of survey findings, age may be the most critical demographic variable in accounting for variation in environmental attitudes and behavior (Black 1993). Further, attitudes on the environment may be shaped (or more easily shaped) during formative years, and young people provide a readily accessible target to policymakers (via schools and youth organizations).

11. Miller and Jacobson (1992: 177) argue that "An important theory--the theory of demographic transition--provided a framework for the survey," but this theory is too general to have provided much guidance.

12. This survey is produced by the Roper Center for Public Opinion Research. Despite the large number of polls covered in the Roper Center Archives, not all commercial agencies share all of their data with the Center.

13. Public interest in population may have been waning during this period. A content analysis of articles on population in American magazines found a decline in the number of articles on population from about 1970 on. However, among the articles devoted to population, the topic of population and the environment "goes from being a non-issue in 1946 to being the single most frequently invoked anti-growth argument in the 1980s" (Wilmoth and Ball 1992: 651, see footnote 6).

14. According to the editors, "The data are drawn from surveys...by polling organizations which, in the judgment of the editors, are engaged in research of the highest scientific quality..." (Hastings and Hastings 1991: xi).

15. Some surveys have been multi-national, such as those sponsored by the EEC and Gallup International. In such cases, they have used the same question in a number of nations and counted the same item several times.

16. The birth control category includes attitudes toward abortion, sterilization, the pill, family planning commercials, and government expenditures on family planning. Family attitudes include ideal family size, desire for more children, adoption, spacing, etc.

17. These countries include Spain, Austria, Norway, Finland, Sweden, USSR, Hong Kong, Korea, Taiwan, Philippines, South Africa, Gabon, Peru, Chile, and Colombia. With less than one-fifth of its items dedicated to population, the United States is near the bottom, while Canada, with 45%, is at the top.

18. The correct response was 50 years. Researchers considered responses between 45 and 60 years as correct.

19. Concern was about the same for Catholics and non-Catholics but was higher among the better educated in both surveys (Kantner 1968). An explanation could be that the better educated have superior demographic knowledge. But researchers did not test the hypothesis. A similar blind spot occurs in an analysis of two other national samples of married women in the U.S. National Fertility Surveys of 1965 and 1970. Finding very low levels of demographic knowledge in both samples, the analyst concluded that "the fact that only one respondent in four knew or could guess the correct size indicates that attitudes about population growth are not being informed by knowledge of the size of the population" (Rindfuss 1972: 465). However, since the survey did not report a cross-tabulation between knowledge and attitudes, we cannot assume the irrelevance of knowledge.

20. In addition to polls by Gallup and Harris, the International Social Science Survey has conducted a multi-national survey, but results are not yet available.

21. The third of these items ("How would you rate the environment in this country--excellent, pretty good, only fair, or poor") is of special significance, since the report leans on responses to it for the conclusion that the survey revealed "deep and widespread concern."

22. Question wordings also failed to include critical middle positions as alternatives. Thus, nine items ask how things will change in the next 50 years but allow only two alternatives: "Will there be more or less deserts? Will there be cleaner or dirtier air? Should this country be doing more or less...to protect the environment...?" (emphasis added). Responses to such questions tend to understate the degree of indifference or uncertainty.

23. It is likely that fore-knowledge of the subject influenced

Ireland's high degree of apparent concern. However, one other of the 22 countries (the Netherlands) also rated environment this highly, presumably without such knowledge. In these countries and one other with a relatively large proportion citing environment as the number one problem, smaller proportions rated environmental problems as "very serious." Thus, in the Netherlands, although 39% mentioned the environment as the most important problem, only 32% felt environment was a "very serious" problem. In virtually all other countries, far higher proportions regarded environment as a very serious problem than volunteered it as the most important problem. Examples are the United States (51% and 11%, respectively) and Poland (66% and 1%, respectively).

24. The two polls agree on only two points. In both surveys, Norway shows the lowest concern about the state of its environment. And, within each poll, the levels of concern among the three developing countries is about the same.

25. Another question asked how much overpopulation, consumption of resources, and multinational companies contributed to environmental problems in developing countries. In most countries, substantial proportions rated overpopulation as contributing "a great deal" to environmental problems--an average of 47% in the seven developing countries and 38% in the 15 others (computed from table 10, Dunlap, Gallup, and Gallup 1992).

26. In an early review of those analyses that have reported correlation coefficients for environmental variables, Van Liere and Dunlap (1980) found only one population scale among 21 studies.

27. Barnett (1970: 59) found that among a small sample of American women, there was only a moderate correlation between demographic concerns and the belief that couples should restrict fertility to avoid overpopulation. In 1970, he predicted that "a strong correlation will develop by the mid-1970s...stemming from the continued pollution of the environment with people and chemicals." It seems time to test the hypothesis.

## REFERENCES

- Back, K. and H. Winsborough. 1968-69. "Population Policy: Opinions and Actions of Governments." PUBLIC OPINION QUARTERLY 32(4):634-645.
- Barnett, L. D. 1970. "U. S. Population Growth as an Abstractly-Perceived Problem." DEMOGRAPHY 7(1):53-60.
- Berelson, B. 1966. "American Attitudes on Population Policy." STUDIES IN FAMILY PLANNING 9:5-8.
- . 1974. POPULATION POLICY IN THE DEVELOPING COUNTRIES. New York: McGraw Hill.
- Black, A. 1993. Privately-circulated memorandum, May 8.
- Brown, Lester. 1991 "The New World Order." In Brown and others, eds., STATE OF THE WORLD. London, United Kingdom: W.W. Norton and Company.
- Cleland, J. and J. Hobcraft. 1985. REPRODUCTIVE CHANGE IN DEVELOPING COUNTRIES. Oxford, United Kingdom: Oxford University Press.
- Dialog. 1986. Dialog Information Retrieval Service. SOCIOLOGICAL ABSTRACTS.
- Dunlap, R. E. 1991. "Public Opinion in the 1980s: Clear Consensus Ambiguous Commitment." ENVIRONMENT 53(8):10-15 and 32-37.
- Dunlap, R. E. and R. Scarce. 1991. "The Polls. Poll Trends: Environmental Problems and Protection." PUBLIC OPINION QUARTERLY 53:651-672.
- Dunlap, R. E., G. H. Gallup, Jr., and A. M. Gallup. 1992. "Trends in Public Opinion Toward Environmental Issues: 1965-1990." In R. E. Dunlap and A. G. Mertig, eds., AMERICAN ENVIRONMENTALISM. Philadelphia, Pennsylvania: Taylor and Francis.
- . 1993a. THE HEALTH OF THE PLANET SURVEY. Princeton, New Jersey: The George H. Gallup International Institute.
- . 1993b. "Of Global Environmental Concern: Results from an International Public Opinion Survey." ENVIRONMENT 35(9):6-15, 33-39.
- Eldridge, Hope. 1968. "Population Policies." INTERNATIONAL ENCYCLOPEDIA OF THE SOCIAL SCIENCE. New York: Macmillan Press.
- Farooq, G. and E. M. Pernia. 1987. POPULATION BULLETIN OF THE UNITED NATION. 23/24, New York.

Gille, H. 1985. "Policy Implications." In J. Cleland and J. Hobcraft, eds., REPRODUCTIVE CHANGE IN DEVELOPING COUNTRIES. Oxford, United Kingdom: Oxford University Press.

Grebenik, E. 1981. THE WORLD FERTILITY SURVEY AND ITS 1980 CONFERENCE: INTERNATIONAL STATISTICAL INSTITUTE. Cited in J. Blake, 1983. Book Review in POPULATION AND DEVELOPMENT REVIEW 9(1):153-156.

Harris, Louis and Associates. 1989. "Public and Leadership Attitudes to the Environment in Four Continents." STUDY 884002. New York: Louis Harris and Associates.

Hastings, E. H. and P. K. Hastings. 1991. INDEX TO INTERNATIONAL PUBLIC OPINION 1989-1990. New York: Greenwood Press.

Institute for Resource Development. 1990. "Interviewer's Manual for Use with Model 'A' Questionnaire for High Contraceptive Prevalence Countries." BASIC DOCUMENTATION 1. Columbia, Maryland: Institute for Resource Development/Macro International, Inc.

Jacobson, H. 1992. "Proposal for a Workshop for the Global Omnibus Environmental Survey." Unpublished document, University of Michigan, Ann Arbor, Michigan.

Kantner, J. 1968. "American Attitudes on Population Policy: Recent Trends." STUDIES IN FAMILY PLANNING 30:1-7.

Lapham, R. J. and W. P. Maudlin. 1985. "Contraceptive Prevalence: The Influence of Organized Family Planning Programs." STUDIES IN FAMILY PLANNING 16(3):117-137.

Milavsky, J. R. 1991. "The U. S. Public's Changing Perceptions of Environmental Change, 1950-1990." In K. Pawlik, ed., PERCEPTION AND ASSESSMENT OF GLOBAL ENVIRONMENTAL CONDITIONS AND CHANGE (PAGE C): REPORT L. Human Dimensions of Global Environmental Change Programme of the International Social Science Council, Barcelona, Spain.

Miller, Roberta B. and Harold Jacobson. 1992. "Research on the Human Components of Global Change: Next Steps." GLOBAL ENVIRONMENTAL CHANGE 2(3):170-182.

Norris, P. n.d. "Are We All Green Now? Public Opinion Towards Environmentalism in Britain." Unpublished manuscript.

Ortega, M. and M. Vaessen. 1987. "Dissemination and Utilization of Findings and Methodology Within Countries." In J. Cleland and C. Scott, eds., THE WORLD FERTILITY SURVEY. Oxford, United Kingdom: Oxford University Press.

Preston, S. 1993. "The Contours of Demography: Estimates and Projections." DEMOGRAPHY 30(4):593-606.

Rindfuss, R. R. 1972. "Recent Trends in Population Attitudes." In R. Parke and C. F. Westoff, eds., ASPECTS OF POPULATION GROWTH POLICY. Commission on Population Growth and the American Future. Washington, D.C.: U. S. Government Printing Office.

Robinson, W. 1975. POPULATION AND DEVELOPMENT PLANNING. New York: The Population Council.

Scott, C. and V. C. Chidambaram. 1985. "World Fertility Survey: Origins and Achievements." In J. Cleland and J. Hobcraft, eds., REPRODUCTIVE CHANGE IN DEVELOPING COUNTRIES. Oxford, United Kingdom: Oxford University Press.

Segal, S. 1984. "U.S. Population Assistance to Developing Countries: Gallup Survey Findings" PRESS RELEASE, Mexico City, Aug. 3.

SOCIOFILE. (1974 -August 1994, COMPACT DISC). "Guide Introduction." Norwood, Massachusetts: Silver Platter Inc.

UNITED NATIONS. 1989. Trends in Population Policy. Population Studies 114/ST/ESA/SER.A/114. New York.

----- . 1990. RESULTS OF THE SIXTH POPULATION INQUIRY AMONG GOVERNMENTS. Population Policy Paper 31/ST/ESA/SER.R/104. New York.

----- . 1992. WORLD POPULATION MONITORING, 1991. Population Studies 126/ST/ESA/SER.A/126. New York.

United Nations Conference on Environment and Development (UNCED). 1992. NATIONS OF THE EARTH REPORT 1-3. Geneva, Switzerland.

Van Liere, K. and R. Dunlap. 1980. "The Social Bases of Environmental Concern: A Review of Hypotheses, Explanations and Empirical Evidence." PUBLIC OPINION QUARTERLY 44(2):181-197.

Watson, W. 1977. FAMILY PLANNING IN THE DEVELOPING WORLD. New York: Population Council.

Wilmoth, J. R. and P. Ball. 1992. "The Population Debate in American Popular Magazines." POPULATION AND DEVELOPMENT REVIEW 18:4.

Wolman, D. M. 1972. "Findings of the National Commission's Public Opinion Survey." In Robert Blake and Charles Westoff, eds., ASPECTS OF POPULATION GROWTH POLICY. Washington, D.C.: Commission on Population Growth and the American Future.

Worcester, R. 1993. "Public and Elite Attitudes to Environmental Issues." INTERNATIONAL JOURNAL OF PUBLIC OPINION RESEARCH. 5(4):315-334.